

SILIANG SONG

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EDUCATION

Ph.D. in Ecology and Evolutionary Biology April 2025 (expected)
University of Michigan, Ann Arbor MI, US
- Advisor: Dr. Jianzhi “George” Zhang

B.S. in Biological Science June 2018
Zhejiang University, Chu Kochen Honors College Hangzhou, China
- Major GPA: 3.89/4.00, ranking 1/20

AWARDS & FELLOWSHIPS

Graduate Student Excellence Awards, SMBE2024, Puerto Vallarta, Mexico 2024
Rackham Predoctoral Fellowship, University of Michigan 2024
Rackham One-Term Dissertation Fellowship, University of Michigan 2023
SSE travel award, Society for the Study of Evolution 2022
Best Student Presenter in CSST summer program, UCLA 9/2017
First-Class Scholarship for Outstanding Merits 2015, 2016, 2017
Zhejiang Provincial Government Scholarship 10/2016
Excellent project of Zhejiang University SQTP (Students Quality Training Project) 4/2016
First-Class Scholarship for Elite Students in Basic Sciences 12/2015
First Prize of Zhejiang Province College Students Physics Innovation Competition 12/2015
Second Prize of Chinese Physics Olympiad in Zhejiang Division 10/2013

GRANTS

Rackham Graduate Student Research Grant, Rackham Graduate School,
University of Michigan 2022, 2023
Rackham Conference Travel Grant, Rackham Graduate School, University of Michigan 2022, 2023
Graduate Travel Allowance, Department of Ecology and Evolutionary Biology,
University of Michigan 2022, 2023, 2024
Block Grant, Department of Ecology and Evolutionary Biology, University of Michigan 2020

TEACHING EXPERIENCE

- BIO 305 “Genetics”
Graduate Student Instructor, University of Michigan, Ann Arbor
Winter 2020, Winter 2021, Fall 2021
- BIO 173 “Introductory Biology Laboratory”
Graduate Student Instructor, University of Michigan, Ann Arbor
Fall 2019

RESEARCH EXPERIENCE

Department of Ecology and Evolutionary Biology, University of Michigan, Ann Arbor

9/2019-now

Ph.D. Student, Advisor: Dr. Jianzhi Zhang

Ann Arbor, MI

Project: (1) Unbiased inference of the fitness landscape ruggedness from imprecise fitness estimates
(2) Adaptive tracking generates quasi-neutral molecular evolution
(3) Testing evolutionary hypotheses using human genomes and phenomes

Department of Organismic and Evolutionary Biology, Harvard University

10/2017-4/2018

Intern Research Assistant, Advisor: Dr. Naomi Pierce

Cambridge, MA

Project: Lepidoptera opsin gene screening for differences between diurnal and nocturnal species

The Cross-disciplinary Scholars in Science and Technology (CSST) Program, University of California, Los Angeles (UCLA)

7/2017-9/2017

Intern Research Assistant, Advisor: Dr. Brad Shaffer

Los Angeles, CA

Project: Revealing phylogeny of Ambystomatidae using thousands of genes from targeted enrichment

Institute of Insect sciences, Zhejiang University

11/2015-7/2017

Undergraduate Research Assistant, Advisor: Dr. Xuexin Chen

Hangzhou, China

Project: Hymenoptera Taxonomy & Phylogeny Practice

PUBLICATIONS

Song, S., Chen, P., Shen, X., & Zhang, J. Adaptive tracking generates quasi-neutral molecular evolution. Manuscript in preparation.

Jung, J., Song, S., Chan, B. K. K., & Park, J. K. Rapid evolution of mitochondrial genomes in parasitic barnacle Rhizocephala (Crustacea: Cirripedia). Manuscript in preparation.

Shen, X., Song, S., Li, C., & Zhang, J. (2024). Further evidence for strong non-neutrality of yeast synonymous mutations. *Mol Biol Evol.*, under review

Yancey, C. E., Hart, L., Lad, A. C., Birbeck, J. A., Song, S., Mohamed, O. G., Fribley, A., Haller, S., Tripathi, A., Kennedy, D., Westrick, J., Sherman, D. H., & Dick, G. J. (2024). Multi-omic analysis reveals the synthesis of a unique, truncated, microcystin molecule from a partial *mcy* operon in *Microcystis* culture and natural populations. *Environ. Sci. Technol.*, under review.

Song, S., & Zhang, J. (2024). In search of the genetic variants of human sex ratio at birth: Was Fisher wrong about sex ratio evolution? *Proc. R. Soc. B*, under review

Li, J., Song, S., & Zhang, J. (2024). Where are the formerly Y-linked genes in the Ryukyu spiny rat that has lost its Y chromosome? *Genome Biol. Evol.* 16, evae046.

Song, S., & Zhang, J. (2024). Genetic variants underlying human bisexual behavior are reproductively advantageous. *Sci. Adv.* 10, eadj6958.

Song, S., & Zhang, J. (2023). Effective fitness under fluctuating selection with genetic drift. *G3* 13, jkad230.

Song, S., & Zhang, J. (2023). Contraception ends the genetic maintenance of human same-sex sexual behavior. *Proc. Natl. Acad. Sci. USA* 120, e2303418120.

Shen, X., **Song, S.**, Li, C., & Zhang, J. (2022). On the fitness effects and disease relevance of synonymous mutations. *bioRxiv*, 2022-08.

Shen, X., **Song, S.**, Li, C., & Zhang, J. (2022). Synonymous mutations in representative yeast genes are mostly strongly nonneutral. *Nature* 606, 725-731.

Song, S., & Zhang, J. (2021). Unbiased inference of the fitness landscape ruggedness from imprecise fitness estimates. *Evolution* 75, 2658–2671.

Wang, R., Wu, S. T., Yang, X., Qian, Y., Choi, J. P., Gao, R., **Song, S.**, Wang, Y., Zhuang, T., Wong, J. J., Zhang, Y., Han, Z., Lu, H., Alexander S. I., Liu, R., Xia, Y., & Zheng, X. (2021). Pcd10-Stk24/25 complex controls kidney water reabsorption by regulating Ezrin-mediated Aqp2 endocytosis. *JCI insight* 6, e142838.

Lienard, M. A., Bernard, G. D., Allen, A., Lassance, J. M., **Song, S.**, Childers, R. R., Yu, N., Ye, D., Stephenson, A., Valencia-Montoya, W. A., Salzman, S., Whitaker, M. R. L., Calonje, M., Zhang, F., & Pierce, N. E. (2021). The evolution of red color vision is linked to coordinated rhodopsin tuning in lycaenid butterflies. *Proc. Natl. Acad. Sci. USA* 118, e2008986118.

PRESENTATIONS

- “In search of the genetic variants of human sex ratio at birth: Was Fisher wrong about sex ratio evolution?”,
2024 SMBE Annual Meeting, oral presentation, Puerto Vallarta, Mexico 7/2024
- “Toward resolving the Darwinian paradox of same-sex sexual behavior”,
Invited talk, Zhejiang University, China 6/2024
- “Adaptive tracking generates quasi-neutral molecular evolution”,
2023 SMBE Annual Meeting, oral presentation, Ferrara, Italy 7/2023
- “Unbiased inference of the fitness landscape ruggedness from imprecise fitness estimates”,
Evolution 2022 Annual Meeting, oral presentation, Cleveland 6/2022
- “Unbiased inference of the fitness landscape ruggedness from imprecise fitness estimates”,
2021 SMBE Annual Meeting, virtual poster 7/2021
- “Testing evolutionary hypotheses using human genomes and phenomes”,
EEB student evaluation seminar, University of Michigan, Ann Arbor 1/2021

“Reconstruction of Ambystomatidae Phylogeny using Thousands of Targeted Genes”,
CSST summer program, selected presentation, University of California, Los Angeles 9/2017

PROFESSIONAL SOCIETIES

Member, Society for Molecular Biology and Evolution (SMBE)

Member, Society for the Study of Evolution (SSE)

SERVICE & OUTREACH

Ad-hoc reviewer for *Molecular Biology and Evolution*, *Genome Biology*, *Evolution*, and *Trend in Genetics*

GSI guest at faculty learning community “Teaching with GSIs”, UMich 11/2022

Grad Student Council (GREEBS) Representative on EEB Seminar Committee, UMich 6/2020-6/2021

Student Volunteer for Zhejiang University Annual Group Wedding Ceremony 5/2017

Referee and Organizer for Sanhao Cup Basketball Match, Zhejiang University 2015-2017